Amendments to the Specification

The paragraphs starting at page 1, line 14 and ending at page 2, line 15 have been amended as follows.

For automatic both-side recording in an ink jet recording apparatus, several methods have been commercialized or proposed ~~in several methods~~. In these methods, after recording on a front side (top side) of a recording sheet, the conveying direction thereof is reversed to feed the recording sheet into a front-back side inverting apparatus, and, after an inverting operation, the recording sheet is conveyed again by the same sheet conveying unit as in the recording operation on the front side to execute recording on the back side of the recording sheet by the same recording unit.

Among these methods, U.S. Patent No. 6,332,068 discloses an invention in which the front-back side inverting apparatus is provided with two drive rollers whereby the conveying direction of the recording sheet is inverted by 180° along a conveying path. In the prior apparatus of such configuration, the recording sheet is conveyed with a recorded surface outside in the front-back side inversion apparatus. Also a configuration of inverting the conveying direction of the recording sheet by 180° by a main drive roller and an auxiliary drive roller is known, ~~form~~ for example, in Japanese Patent Application Laid-open No. 2002-59598. Also in the apparatus of such configuration, as in the

aforementioned example, the recording sheet is conveyed with a recorded surface outside in the front-back side inversion apparatus.

The paragraph starting at page 6, line 18 and ending at line 21 has been amended as follows.

Fig. 3 is a schematic perspective view showing a pinch roller contact-separation mechanism in ~~an~~ a recording apparatus of an embodiment of the present invention;

The paragraph starting at page 7, line 23 and ending at line 25 has been amended as follows.

Fig. 11 is a timing chart showing ~~operations~~ operation states of the lift mechanism in the recording apparatus of an embodiment of the present invention;

The paragraph starting at page 9, line 7 and ending at line 10 has been amended as follows.

Figs. 20A and 20B ~~is~~ are combined as shown in Fig. 20, and they are flow charts showing a sequence of an auto both-side recording operation in a recording apparatus of an embodiment of the present invention;

The paragraph starting at page 13, line 9 and ending at line 20 has been amended as follows.

Referring to Fig. 21, a CPU 310 controls the present recording apparatus. Based on control data and control programs recorded in a ROM 311, the CPU 310 develops recording data in a RAM 312 and executes predetermined processes thereby outputting control commands to various units. The operation units controlled by the CPU 310 ~~includes~~ include the recording head 11, an ASF motor 46 for driving the main ASF 37, a PG motor 302 for driving the maintenance unit 36, an LF motor 26, a CR motor 17, etc., and the recording head 11 is driven through a head driver 307 while each motor is driven through a motor driver.

The paragraph starting at page 19, line 11 and ending at line 25 has been amended as follows.

The recording sheet conveyed from the sheet feeding unit is conveyed to the nip portion of the sheet conveying roller 21 and the pinch roller 22, constituting the sheet

conveying unit. ~~As the~~ The center of the pinch roller 22 is mounted with a certain offset, with respect to the center of the sheet conveying roller 21, in a direction closer to the first sheet discharge roller 30, whereby a tangential direction along which the recording sheet is inserted is somewhat inclined from the horizontal direction. Therefore, in order that the front edge of the sheet can be securely guided to the nip portion, a sheet path formed by the pinch roller holder 23 and the guide member 70 is inclined downwards toward the nip portion.

The paragraph starting at page 20, line 13 and ending at page 21, line 12 has been amended as follows.

After such registration operation, the rotation of the LF motor 26 is initiated in a normal advancing direction of the recording sheet (direction advancing toward the first sheet discharge roller 30). Thereafter the sheet feeding roller 39 is cut off from the driving power and is rotated by the movement of the recording material. At this point, the recording sheet is conveyed only by the sheet conveying roller 21 and the pinch roller 22. The recording sheet is advanced in the normal direction by a predetermined line feed amount, and proceeds along a rib provided on the platen 29. The front edge of the recording sheet reaches in succession a nip portion between the first sheet discharge roller 30 and the first spur train 32 and a nip portion between the second sheet discharge roller 31 and the second spur train 33. Since the sheet conveying roller 21, the first sheet discharge

roller 30 and the second sheet discharge roller 32 are connected through a gear train, which is so constructed that the first sheet discharge roller 30 and the second sheet discharge roller 31 have peripheral speeds substantially equal to that of the sheet conveying roller 21, the first sheet discharge roller 30 and the second sheet discharge roller 31 rotate in synchronization with the sheet conveying roller 21, whereby the recording sheet is conveyed without a slack or a tension.

The paragraph starting at page 24, line 23 and ending at page 25, line 13 has been amended as follows.

A ~~recoding~~ recording range on the front side will be explained. The recording head 11 is provided with a discharge port area (recording area, ink discharge area) N between the paper conveying roller 21 and the first sheet discharge roller 30, but, because of conditions of arrangement of the ink flow paths to the discharge ports and of wirings to the ink discharging actuators, it is usually difficult to position the discharge port area N in the immediate vicinity of the nip portion of the sheet conveying roller 21. On this account, as shown in Fig. 2, the discharge port area N is positioned downward by a length L1 from the nip portion of the sheet conveying roller 21. Therefore, in a state where the recording sheet is pinched between the sheet conveying roller 21 and the pinch roller 22, the recording cannot be made within a range of the length L1, at the side of the nip portion of the sheet conveying roller 21.

The paragraph starting at page 28, line 15 and ending at page 29, line 5 has been amended as follows.

Another mechanism is a pressure regulating mechanism for the pinch roller spring 24. In the present embodiment, the pinch roller 22 is released by rotating the entire pinch roller holder 23. In a state where the pinch roller 22 is pressed to the sheet conveying roller 21, since the pinch roller holder 23 is pressed by the pinch roller spring 24, a rotation of the pinch roller holder 23 in the releasing direction increases the pressure of the pinch roller spring 24 thereby resulting in drawbacks of an increase in the load for releasing the pinch roller holder 23 or an increase in the stress applied to the pinch roller holder 23 itself. In order to prevent such phenomenon, a mechanism for reducing the pressure of the pinch roller spring 24 at the release of the pinch roller holder 23 is provided.

The paragraph starting at page 33, line 7 and ending at page 34, line 9 has been amended as follows.

Fig. 4B shows a state where the pinch roller 22 is in a released state, and the pinch roller spring 24 is in a load-removed state. More specifically, by a rotation of the lift cam shaft 58 in a direction indicated by an arrow a in Figs. 4A to 4C, the pinch roller holder pressing cam 59 impinges on the pinch roller holder 23 to gradually rotate the pinch

roller holder 23 in a direction of an arrow b in Figs. 4A - 4C, whereby the pinch roller 22 is released from the sheet conveying roller 21. Also the pinch roller spring pressing cam 60 contacts the pinch roller spring 24 at a smaller radius, whereby a contact ~~pint~~ point of the pinch roller spring 24 with the pinch roller pressing cam 60 is rotated in a same direction ~~same~~ as a rotating direction of a contact point with the pinch roller holder 23 by the rotation of the pinch roller holder 23. Also a torsion angle $\theta 2$ of the pinch roller spring 24 is larger in this state than in the state shown in Fig. 4A, whereby the load of the spring is reduced and the pinch roller holder 23 is almost free from the load. Therefore, at the rotation of the pinch roller holder 23, the biasing force of the pinch roller spring 24 does not become a load for the rotation, and the pinch roller holder 23 is in a state almost free from the stress. In this state, a gap H of a predetermined amount is formed between the sheet conveying roller 21 and the pinch roller 22, and the front edge of the recording sheet, even in case of being roughly guided, can be easily inserted into the nip portion.

The paragraph starting at page 36, line 8 and ending at line 23 has been amended as follows.

Fig. 5B is a partial lateral view schematically showing a state where the PE sensor lever 66 is locked by the PE sensor lever pressing cam 61. More specifically, a rotation of the PE sensor lever pressing cam 61 in the direction of the arrow a in Figs. 5A and 5B causes a cam follower portion of the PE sensor lever 66 to be pushed up and rotated

in a direction indicated by an arrow b. In this state, a sheet detecting portion of the PE sensor lever 66 is hidden inside the pinch roller holder 23, so that the PE sensor lever 66 does not contact the recording sheet even if it is present in the path. Therefore, in case the recording sheet is conveyed in the direction of the arrow 2 in Fig. 2 in this state, the recording sheet can be prevented from jamming by contacting the PE sensor lever 66.

The paragraph starting at page 38, line 10 and ending at line 22 has been amended as follows.

The guide shaft 14 is supported by both lateral faces of the chassis 10 as shown in Fig. 1, and is fitted in ~~an~~ unillustrated vertically elongated holes (cf. Figs. 8A, 8B and 8C) thereby being freely movable in a direction indicated by an arrow Z in Fig. 7 but being prevented from movement in directions of arrows X and Y in Fig. 7. The guide shaft 14 is normally biased downwards (opposite to the arrow Z) by the guide shaft spring 55, but, when the cam idler gear 53 rotates, the guide shaft cam R 14a and the guide shaft cam L 14b impinge on the guide slopes 56 whereby the guide shaft 14 itself rotates and moves vertically.

The paragraph starting at page 42, line 26 and ending at page 43, line 7 has been amended as follows.

In case a planet gear mechanism is employed for the driving power transmission and a negative load is generated at the driven side, there may result a so-called ~~an~~ overtaken state in which the gears are disengaged by a movement of the pendulum lock lever 64 and the driven side advances in phase than the driving side. In order to prevent such phenomenon, the present embodiment is provided with the pendulum locking cam 63 and the pendulum locking lever 64.